

LACERTIDAE

*Meroles anchietae* (Bocage, 1867)

SHOVEL-SNOUDED DUNE LIZARD

**SIZE,  
GROWTH AND  
LONGEVITY**

On 18 December 2011, an adult male *Meroles anchietae* was captured and marked with four red beads ('RRRR') by DE at Station Dune (23° 34' 9.74" S, 15° 2' 30.10" E) in the immediate vicinity of Gobabeb Research Station, Namib Naukluft Park, Namibia during a mark-recapture study (unpubl. data). Individuals were permanently marked using a technique developed by Fisher & Muth (1989) where coloured beads are surgically attached to the base of the tail (Fig. 1), allowing identification by code (different combinations of coloured beads). When captured, snout-to-vent length (SVL) and tail length (TL) were determined using a millimeter ruler, sex was determined using a probe inserted into the cloaca, and mass was recorded to the nearest 0.1 g using a spring scale (Pesola®, PESOLA AG, Switzerland) (Table 1). On 6 January 2013, the same individual was recaptured in the same area by DE during another study (unpubl. data) that aimed to assess the influence of environmental and habitat factors on the foraging behavior of *M. anchietae*. Newly captured individual lizards were marked with beads as described above.

On 20 December 2014, 167 weeks (3 years, 11 weeks) after the first capture, individual



'RRRR' was recaptured again, this time by NI and again at Station Dune. By then, the lizard had grown 5.0 mm SVL since its first capture, from 46.0 to 51.0 mm SVL (Table 1). Over the course of this study six more marked individuals of *M. anchietae* were captured at least twice, measured and weighed. Lizard 'WWPP' was recaptured after one year and five months, while other lizards were recaptured after periods of less than one year. Growth of individual lizards was determined as length gain in mm SVL between the first and subsequent capture, and time (in weeks) that had passed since the last capture was noted. Growth rate was estimated as length gain divided by number of weeks since the last capture (Table 1).

*Meroles anchietae* follows an unusual reproductive strategy for a lacertid lizard. The species produces up to four clutches per year without having a specific breeding period but each clutch contains only one or (maximum) two large eggs (Goldberg & Robinson 1979; Robinson 1990; Branch 1998). Hatchlings are very large (SVL 25–27 mm) and mature quickly. The youngest reproductively-active females measure only 37 mm SVL at the age of approximately 4–6 months, while males mature at a SVL of about 40–42mm when they are 6–7

Photo for image reference provided by John Marais

months old (Goldberg & Robinson 1979). At the age of 1–2 years females reach about 45 mm SVL. Adult males averaged larger (SVL 49.0 mm, mass 4.5 g) than females (SVL 44.0 mm, mass 3.1 g) in the study by Goldberg & Robinson (1979). Maximum size is reported as 55.0 mm SVL (Branch 1998). One exceptionally large male collected by SK from near Bogenfels in Namibia's Sperrgebiet (27° 3' 13.93" S, 15° 21' 34.13" E) was as large as 59.0 mm SVL (new size record) with a total length of 65.0 mm and mass of 5.6 g, and will be accessioned as SMR 10650 into the collection of the National Museum of Namibia in Windhoek.

By generalizing our growth data and the data collected by Goldberg & Robinson (1979), the male *M. anchietae* (individual 'RRKG', Table 1) captured at SVL 42.0 mm (age seven months following Goldberg & Robinson 1979) grew 4.0 mm in six months to reach SVL 46 mm. Thus the age when 'RRRR' was captured for the first time was approximately 13 months (7 months + 6 months). We can therefore estimate the age of 'RRRR', when captured the last time on

20 December 2014 with SVL = 51.0 mm, as being about 49 months (4 years, 1 month). As a consequence, individuals with SVL above 51 mm will most certainly be older than four years.

Alan Muth and Mark Fisher have monitored a population of *M. anchietae* at Gobabeb since 1997 and have allowed others (Robinson & Barrows 2013) to discuss some of their data. Their mark-recapture data suggests that most individuals probably live for only one year, with annual survival rates of only 6–18% (Robinson & Barrows 2013). This would suggest that our record is quite exceptional. However, of 59 individuals of *M. anchietae* measured in 2013 and 2014, 13.5% (all males) were of 51.0 mm SVL and larger (unpubl. data SK). Still, ages of these individuals have never been confirmed and they were never recaptured. So far the observation of individual 'RRRR' over more than three years (it would be at least four years old) indicates a new longevity record for the species in the wild.

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Photos: Ronald Jiyamba

Figure 1. Male *Meroles anchietae* with four red beads attached to its tail base (code 'RRRR'), photographed after the 3rd capture on 20th December 2014.

Table 7. Body measurements (snout-vent length [SVL], tail length [TL] and mass for seven individuals of *Meroloes anchietae* from Gobabeb, Namibia at time of first and subsequent captures. Growth rate is estimated as Growth [mm]/Period [weeks].  
Abbreviations: R = red, B = blue, G = green, O = orange, K = black, W = white, P = pink, Y = yellow; r = regenerated tail.

CODE	SEX	FIRST CAPTURE	SVL [mm]	TL [mm]	MASS [g]	RECAPTURE	SVL [mm]	TL [mm]	MASS [g]	PERIOD [WEEKS]	GROWTH [mm]	GROWTH RATE
RRRR	MALE	18-12-11	46.0	53.0	3.3	06-01-13	50.0	54.0	4.6	58	4.0	0.07
RRRR	MALE	18-12-11	46.0	53.0	3.3	20-12-14	51.0	55 (r)	3.6	167	5.0	0.03
BBGO	MALE	09-01-13	41.0	NA	2.3	02-07-13	45.5	44.7	3.8	25	4.5	0.18
RRKG	MALE	21-12-12	42.0	NA	2.3	02-07-13	46.4	52.9	3.9	29	4.4	0.15
GGKG	MALE	14-01-13	50.0	48.0	3.8	13-07-13	50.7	55.7	5.6	22	0.7	0.03
WWPP	MALE	12-01-12	44.0	54.0	3.7	12-06-13	49.9	55.7	4.2	73	5.9	0.08
GGYB	MALE	11-01-13	51.0	60.0	4.0	02-07-13	54.3	50.7	7.0	25	3.3	0.13
BBYY	NA	07-01-12	44.0	40 (r)	3.2	09-11-12	48.2	34.7	3.9	44	4.2	0.10

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